constant greater than that of silicon oxide, so the use of dielectric layer **108** as the exclusive insulating layer between electrodes **102** and **104** may help enhance the capacitance of capacitor **100**. An additional photolithographic mask may be used to selectively remove silicon oxide layer **106**. This mask may also be used in forming a dielectric step for metal lines **202** (see, e.g., the dielectric steps of FIG. **9**). Metal lines **202** may be formed from metal layer SD. In active area **206** of display **14**, metal lines **202** may be formed from portions of metal layer SD that are supported by dielectric layers such as layers **122**, **120**, **64**, **68**, and **70** (i.e., layers of the type that may form illustrative layers L**1**. L**2**, and L**3** of FIG. **9**). Although there are three height steps in the example of FIG. **9**, one step, two steps, three steps, or more than three steps may be formed.

The illustrative configuration of FIG. **11** is similar to that of FIG. **10**, but has an oxide transistor with a locally removed silicon nitride passivation layer. Passivation layer **106** of FIG. **10** may be a silicon nitride layer. Silicon nitride layer **106** may have a high concentration of hydrogen to passivate dangling bonds in polysilicon layer **62** of silicon transistor **58**. For effective passivation, silicon nitride layer **106** may overlap transistor **58** and silicon channel **62**. It may be desirable to prevent the hydrogen from silicon nitride layer **106** from reaching semiconducting oxide channel **112**. This can be accomplished by removing nitride layer **106** from transistor **60**. For example, a photolithographic mask may be used to pattern silicon nitride layer **106** so that silicon nitride layer **106** is absent under semiconducting oxide **112** (i.e., so that there is no portion of nitride layer **106** that overlaps transistor **60**). By ensuring that no silicon nitride is present between gate **110** and oxide **112**, the performance of transistor **60** will not be degraded due to hydrogen from layer **106**.

The foregoing is merely illustrative and various modifications can be made by those skilled in the art without departing from the scope and spirit of the described embodiments. The foregoing embodiments may be implemented individually or in any combination.

What is claimed is:

1. An organic light-emitting diode display, comprising:
- a substrate;
- an array of pixel circuits that form an active area of the substrate;
- circuitry in an inactive area of the substrate;
- dielectric layers that have a first thickness in the active area, are not present in the inactive area, and have a second thickness that is less than the first thickness between the active area and the inactive area, wherein each pixel circuit comprises:
  - an organic light-emitting diode;
  - a silicon transistor coupled in series with the organic light-emitting diode;
  - a storage capacitor coupled to the silicon transistor; and
  - a semiconducting oxide transistor coupled to the storage capacitor.

2. The organic light-emitting diode display defined in claim **1** wherein the substrate is bent in the inactive area.

3. The organic light-emitting diode display defined in claim **2** wherein the silicon transistor in each pixel circuit comprises a silicon channel, wherein the dielectric layers include a buffer layer between the substrate and the silicon channel, and wherein the buffer layer is not present in the inactive area.

4. The organic light-emitting diode display defined in claim **3** further comprising a first metal layer in the active area, wherein some of the first metal layer forms a gate for the silicon transistor in each pixel circuit.

5. The organic light-emitting diode display defined in claim **4** wherein some of the first metal layer forms a gate for the semiconducting oxide transistor in each pixel circuit.

6. The organic light-emitting diode display defined in claim **4** further comprising a second metal layer, wherein the second metal layer is patterned in the active area to form source-drain terminals for the silicon transistor and for the semiconducting oxide transistor.

7. The organic light-emitting diode display defined in claim **6** wherein the second metal layer is patterned in the inactive area to form data lines that are coupled between the array of pixel circuits and the circuitry in the inactive area.

8. The organic light-emitting diode display defined in claim **7** wherein the substrate is a bent flexible substrate and wherein the data lines are bent and are formed on a surface of the substrate so that none of the dielectric layers are interposed between the data lines and the substrate.

9. The organic light-emitting diode display defined in claim **8** wherein the semiconducting oxide transistor in each pixel comprises a semiconducting oxide channel.

10. The organic light-emitting diode display defined in claim **9** wherein the dielectric layers include a silicon nitride layer that overlaps the silicon channel of the silicon transistor in each pixel circuit and that does not overlap the semiconducting oxide channel of the semiconducting oxide transistor in each pixel circuit.

11. The organic light-emitting diode display defined in claim **10**, wherein the storage capacitor has a first electrode formed from the second layer of metal and has a second electrode.

12. The organic light-emitting diode display defined in claim **11** wherein the dielectric layers include an additional silicon nitride layer, wherein the additional silicon nitride layer is interposed between the first and second electrodes of the storage capacitor in each pixel circuit.

13. The organic light-emitting diode display defined in claim **12** further comprising a silicon oxide layer that overlaps the semiconducting oxide channel in each pixel circuit and that is locally removed in the storage capacitor of each pixel circuit so that none of the silicon oxide layer is interposed between the first and second electrodes of the storage capacitor.

14. The organic light-emitting diode display defined in claim **2** further comprising data lines that extend from the active area to the inactive area, wherein the dielectric layers have a stepped profile that reduces from the first height to the second height when transitioning from the active area to the inactive area, and wherein the data lines are formed on the dielectric layers with the stepped profile.

15. The organic light-emitting diode display defined in claim **1** wherein the semiconducting oxide transistor in each pixel circuit comprises a drive transistor and wherein the silicon transistor in each pixel circuit comprises a switching transistor.

16. An organic light-emitting diode display, comprising:
- a flexible polymer substrate;
- an array of pixel circuits on the substrate, each pixel circuit including an organic light-emitting diode, at least two semiconducting oxide transistors each having a semiconducting oxide channel, at least one silicon transistor coupled in series with the organic light-emitting diode, and at least one storage capacitor;
- dielectric layers on the flexible polymer substrate that have a stepped profile that reduces in height when